

REMARKS/ARGUMENTS

Reconsideration and withdrawal of the outstanding grounds of rejection are respectfully requested in light of the above amendments and the remarks that follow.

The Examiner has rejected claims 13-17 under 35 U.S.C. § 112, and 35 U.S.C. § 101 for the reasons stated on page 3 of the Official Action. By this Amendment, claims 13-17 have been canceled.

The Examiner has rejected claim 10 under 35 U.S.C. § 112, second paragraph, as indefinite, for failing to recite the temperature at which the claimed viscosity is measured. By this Amendment, applicants have added the appropriate temperature as disclosed in the specification (page 9, line 4), thereby overcoming the rejection.

The Examiner has rejected claims 1 and 13-16 under 35 U.S.C. § 102(e) as anticipated by Beckman (US 6,482,873). It is also noted here that claim 17 has been rejected under 35 U.S.C. § 103 as unpatentable over Beckman in view of Ishihara et al. (US 6,189,322).

By this Amendment, applicants have amended claim 1 to substantially incorporate the limitations of claims 2, 5 and 17 such that claim 1 is now directed to a piston ring for use with a piston in a reciprocal compressor, the piston ring comprised of a self-lubricating plastics material composed of a wear-resistant polymer matrix in which are dispersed micro-capsules containing a lubricating agent, or in the polymer is selected from a group consisting of one or more of polyketones, polybutadiene-styrene and polytetrafluoroethylene. In relying on Ishihara for rejecting claim 17, the Examiner refers to claim 15 of Ishihara wherein it is disclosed that a terminal within a refrigerant compressor is covered and sealed with at least one material selected from the group consisting of polyethylene terephthalate, polyphenylene sulfide, polybutylene

terephthalate, a nylon resin, polyethylene naphthalate, a polyimide resin, a polyamideimide resin, polyethersulfone, polyetherether ketone, polysulfone, a fluorine resin and silicone.

Reference is also made to the paragraph bridging columns 16 and 17 of Ishihara wherein it is disclosed that the terminal 113 is hermetically sealed via a shrinkable tube 123 formed of one of the above noted materials. It is readily apparent from this disclosure that the use of the noted materials in Ishihara has nothing to do with lubricating sliding components since the terminal 113 is fixed. Thus, there is nothing in Ishihara to even remotely suggest that the material be provided with self-lubricating microcapsules as described in Beckman. Moreover, Ishihara teaches nothing with respect to the composition of a piston ring for use with a piston in a reciprocable compressor.

Further in this regard, while Beckman discloses various applications for plastic seals (radial packing rings, bearings, guiding elements) Beckman does not suggest that the plastic microcapsule containing seals disclosed therein have any applicability within the high temperature, high friction context of a piston ring.

Accordingly, no combination of Beckman and Ishihara is sufficient to establish prima facie obviousness with respect to claim 1 as amended herewith.

The Examiner has rejected claim 7 under 35 U.S.C. § 103 as unpatentable over Beckman.

Insofar as claim 7 depends from claim 1, it is patentable for all of the reasons noted above.

The Examiner has rejected claims 2-5, 18 and 19 under 35 U.S.C. § 103 as unpatentable over Beckman in view of Kakehi et al. (US 5,934,680).

The secondary reference is cited for teaching seals comprising polyetherketone (PEEK) at a polytetrafluoroethylene (PTFE) resin. The Examiner contends that it would have been obvious to use such materials in the plastic seals of Beckmann.

Claims 2, 5 and 19 have been canceled. Claims 3 and 4 are patentable by reason of their dependence upon claim 1, noting that the secondary reference fails to remedy the deficiencies of Beckmann discussed hereinabove. Claim 18, as amended, also now relates to the composition of a piston ring in the context of a method for reducing friction between adjacent sliding components. Claim 18 is therefore patentable for the same reasons presented above with respect to claim 1.

The Examiner has rejected claims 5 and 7-10 under 35 U.S.C. § 103 as unpatentable over Beckmann in view of Yamashita et al. (US 4,504,543).

The secondary reference is cited for teaching a porous material containing microcapsules containing an α -olefin lubricating agent.

Claim 5 has been canceled, and claims 7-10 are patentable by reason of their dependence upon claim 1, noting that Yamashita fails to remedy the deficiencies of Beckmann discussed hereinabove.

The Examiner has rejected claim 6 under 35 U.S.C. § 103 as unpatentable over Beckmann in view of Dennen (US 2002/0195355). The secondary reference is cited for its teaching of a material with embedded microcapsules, wherein the microcapsules have a polyoxymethylene urea shell. The Examiner concludes that it would have been obvious to use the shell composition of Dennen in the microcapsules of Beckmann.

Claim 6 is also patentable by reason of its dependence upon claim 1, noting that Dennen fails to remedy the deficiencies of Beckmann as discussed hereinabove.

The Examiner has rejected claims 11 and 12 under 35 U.S.C. § 103 as unpatentable over Beckmann in view of Korshak et al. (US 4,076,634). The Examiner cites Korshak for teaching that a metal powder may be added to a self-lubricating plastic material to improve thermal and electrical conductivity thereof.

Claims 11 and 12 are patentable by reason of their dependence upon claim 1, noting that Korshak fails to remedy the deficiencies of Beckmann as discussed hereinabove.

The additional rejection of claim 17 as unpatentable over Beckmann in view of Ishihara has been rendered moot by the cancellation of claim 17.

Applicants also note the Examiner's provisional rejection of claims 1-12 under the judicially created doctrine of obviousness-type double patenting based on claims 1-12 of applicants' copending application Serial No. 10/500,309.


In light of the amendments to the claims herein, and it is not yet clear whether any Terminal Disclaimer is required to overcome this ground of rejection and therefore, applicants will defer action on this issue.

It is respectfully submitted that the application is now in condition for allowance and early passage to issue is requested. In the event, however, any small matters remain outstanding, the Examiner is encouraged to telephone the undersigned so that the prosecution of this application can be expeditiously concluded.

The Commissioner is hereby authorized to charge any deficiency in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

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